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10/812,032	03/30/2004	Hirotsuka Sato	900-494	1422
23117 7590 02/27/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
TRINH, THANH TRUC				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,032

Applicant(s)

SATO ET AL.

Examiner

THANH-TRUC TRINH

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3, 4, 6-9 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3, 4, 6-9 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 8/22/07, 10/16/07, 11/21/07
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The amendment filed 11/29/2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

Amendment of the paragraph beginning at page 16 line 7 and continuing to page 16 line 17, "A degree of downward extent of the drain trough-defining rib and a degree of upward extent of the drip rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a drip rib or drain trough-defining rib of an adjacent solar cell units" is a new matter. There is no portion in the originally filed disclosure describing "A degree of downward extent of the drain trough-defining rib and a degree of upward extent of the drip rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a drip rib or drain trough-defining rib of an adjacent solar cell unit". Instead the original disclosure states that the width of the gaps between solar cell units is adjustable (See page 4 lines 14-23 and page 19 lines 8-13 of the original disclosure), which is absolutely not the same as "a degree of downward extent of the drain trough-defining rib and a degree of upward extent of the drip rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a drip rib or drain trough-defining rib of an adjacent solar cell units".

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Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As newly added, claims 19 and 20 recite limitation “a degree of downward extent of the drain trough-defining rib and a degree of upward extent of the drip rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a drip rib or drain trough-defining rib of an adjacent solar cell units”. There is no support for this limitation in the specification originally filed. Instead the disclosure indicates the width of the gaps between solar cell units is adjustable (See page 4 lines 14-23 and page 19 lines 8-13 of the original disclosure). There is no portion of the originally filed disclosure describing the above limitation.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites limitation "drain trough-defining rib" in lines 11 and 15. It is unclear what "drain trough" is the rib defining.

Claim 20 recites limitation "drain trough-defining rib" in lines 11 and 21. It is unclear what "drain trough" is the rib defining.

Claim 20 recites limitation "the solar cell unit" in lines 20-21. There are two solar cell units, the first and second solar cell units. It is unclear which solar cell unit is "the solar cell unit" referring to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 9 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tourmeux (US Patent 4336413).

Regarding claim 9, as seen in Figures 1, 2 and 6A, Tourmeux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and

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laminating 12 as seen in Figure 1); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 52); a drain channel (formed by back portion 27, wing 29 and back side of U-shaped portion 25) provided along an edge (or along the side of framing piece 22) of the module frame outside the module frame, wherein the solar cell module has a rectangular shape and the module frame includes two horizontal frame portions (framing pieces 24 and 23) provided parallel to each other to be disposed on a roof ridge side and on an eave side, respectively, when the solar cell unit is mounted on the oblique roof, and a first side frame portion (frame piece 22 in Figure 2, or frame piece 61 in Figure 6A) and a second side frame portion (frame piece 21 in Figure 2, or frame piece 60 in Figure 6A) respectively extending from opposite ends of one of the horizontal frame portions to opposite ends of one of the horizontal frame portions to opposite ends of the other horizontal frame portion; the drain channel is provided along an outer side of the first side frame portion and having a channel bottom (back portion 27) and opposite side walls (wing 29 and back side of U-shaped portion 25); the second side frame portion has a planar projection (horizontal back portion of frame piece 21) projecting horizontally outward from an entire upper edge of the second side frame portion; and the projection is located at a higher level than the side walls of the drain channel. As seen in Figure 6A, Tourneux further teaches a planar auxiliary projection (65a) projecting horizontally outward from an entire upper edge of the first side frame portion (or frame piece 61).

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Regarding claim 16, as seen in Figures 2 and 6A, Tourneux teaches the drain channel has a rib (28 in Figure 2, or middle protrusion from the frame piece 61) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

Regarding claim 17, as seen in Figure 1, Tourneux teaches the drain channel has partial division (13) that permit the flow of water trapped in the groove of frame portion 24 (See col. 4 lines 40-43). It is the Examiner's position that the partial division 13 is a barrier plate which closes one end of the drain channel located on the roof ridge side.

Regarding claim 18, as seen in Figure 2 and 6A, Tourneux teaches the projection (back section of frame piece 21 or 60) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame piece (frame piece 21 or 61) for dripping rainwater flowing along the rear surface of the projection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 3-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux (US Patent 4336413)

As seen in Figures 1-5, Tourneux discloses a solar cell unit comprising a solar cell module (12); a module frame (21, 22, 23, 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof; a drain channel (including back portion 27, wing 29 and the back side of U-shape 25) provided along an edge of the module frame outside the module frame wherein the solar cell module has a rectangular shape; the module frame includes two horizontal frame portions (24, 23) provided parallel to each other to be disposed on a roof ridge side and on an eave side, respectively, when the solar cell unit is mounted on the oblique roof, and a first side frame portion (22) and a second side frame portion (21) respectively extending from opposite ends of one of the horizontal frame portions; and the drain channel is provided along an outer side of the first side frame portion, wherein the drain channel includes a channel bottom (back portion 27) and opposite side walls; the second side frame portion (21) has a planar projection (back portion of frame portion 21)

projecting horizontally outward from an entire upper edge of the second side frame portion; and the projection is located at a higher level than the side walls of the drain channel.

The difference between Tourneux and instant claim is the requirement of the width of the drain channel is greater than the width of the projection.

However, Tourneux teaches the drain channel (including bottom portion 27, wing 29 and the back side of U-shape portion 25) is used to direct rain water (See Figures 1-2, col. 3 line 11 to col. 4 line 43, claim 1). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the width of the drain channel can be greater than the projection because the relative dimensions would not perform differently than the prior device, the claimed structure was not patentably distinct from the prior art device. In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. Denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. The choice of how wide the projection relative to the width of the drain channel would not significantly alter the performance of the claimed drain channel.

Regarding claim 3, as seen in Figure 2, Tourneux teaches the drain channel has a rib (28) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

Regarding claim 4, as seen in Figure 1, Tourneux teaches the drain channel has partial division (13) that permit the flow of water trapped in the groove of frame portion 24 (See col. 4 lines 40-43). It is the Examiner's position that the partial division 13 is a barrier plate which closes one end of the drain channel located on the roof ridge side.

Regarding claim 7, as seen in Figure 2, Tourneux teaches the projection (back section of frame portion 21) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame portion (frame portion 21) for dripping rainwater flowing along the rear surface of the projection. (See col. 3 lines

7. Claims 8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux (US Patent 4336413) in view of Klope (US Patent 4621472)

Regarding claim 8, as seen in Figures 1-8, Tourneux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and laminate 12 as seen in Figure 1, or panels 41 and 42 as seen in Figure 4); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 57); a drain channel (including back portion

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27, wing 29 and the back side of U-shaped portion 25) and provided along an edge of the module frame outside the module frame wherein the solar cell module has a rectangular shape and the module frame includes two horizontal frame portions (frame pieces 23 and 24) parallel to each other to be disposed on a roof ridge side and on an eave side, respectively, when the solar cell unit is mounted on the oblique roof, and a first side frame portion (frame piece 22) and a second side frame portion (frame piece 21) respectively extending from opposite ends of one of the horizontal frame portions to opposite ends of the other horizontal frame portion; and the drain channel is provided along an outer side of the first side frame portion, wherein the drain channel includes a channel bottom (back portion 27 of frame piece 22) and opposite side walls (wing 29 and the back side of U-shaped portion 25); the second side frame portion (frame piece 21) has a planar projection (back side of frame piece 21) projecting horizontally outward from an entire upper edge of the second side frame portion; and the projection is located at a higher level than the side walls of the drain channel.

Tourneux does not teach an auxiliary drain channel projecting under the module and extending along an inner side of the first side frame portion.

Kloke teaches a mounting structure to support panel (32) for collecting solar energy (See col. 1 lines 9-54), wherein the structure includes a condensation channels 79 and 80 (or drain channels) projecting from the downwardly extending back frame 81 or 82 under the panel and extending along an inner side of the frame. (See Figure 5, col. 8 lines 8-14)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate an auxiliary drain channel (or condensation channels) projecting under the module and extending along an inner side of the frame as taught by Kloke into the solar cell units of Tourneux, because Kloke teaches that the condensation channels are useful in trapping any moisture condensed on the surfaces of the support structure (such as purlins or batten) and of the glass panels. (See col. 8 lines 8-14). Because Tourneux teaches the frame pieces can vary in height by extending the back side of the U-shaped portion upwardly or downwardly as seen in Figures 3, 5B, 6B and because both Tourneux and Kloke are concerned with forming a supporting structure (or framing) for solar energy collecting panels (such as glass panels 32 in Kloke and laminated solar panels 11 or 41, 42 in Tourneux), one would have reasonable expectation of success from the combination.

Regarding claim 13, as seen in Figure 2, Tourneux teaches the drain channel has a rib (28) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

Regarding claim 14, as seen in Figure 1, Tourneux teaches the drain channel has partial division (13) that permit the flow of water trapped in the groove of frame portion 24 (See col. 4 lines 40-43). It is the Examiner's position that the partial division 13 is a barrier plate which closes one end of the drain channel located on the roof ridge side.

Regarding claim 15, as seen in Figure 2, Tourneux teaches the projection (back section of frame portion 21) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame portion (frame portion 21) for dripping rainwater flowing along the rear surface of the projection.

8. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux (US Patent 4336413).

Regarding claim 19, as seen in Figures 1-2, Tourneux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and laminate 12); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 57), wherein the module frame comprises a first side frame portion (frame piece 22) and a second side frame portion (frame piece 21) extending parallel to one another and being spaced apart in a lateral direction as seen in Figure 1; a drain channel (including a back portion 27 of frame piece 22, wing 29 and the back side of U-shaped portion 25) provided along an edge of the first side frame portion; a planar projection (the back side of frame piece 21) projecting horizontally outward from an upper edge of the second side frame portion (frame piece 21); at least one drain trough-defining rib (wing 28) extending upwardly from the drain channel; at least one drip rib (middle protrusion from the back side of frame piece 21) from the planar projection (or the back side of frame piece 21). As seen in Figures 1-

11, Tourneux shows there are plenty of spaces for the projections to move around. Tourneux also teaches that there is considerable place is left so that expansion of the elements and some deformation of the frame cannot produce any appreciable strain on the panels (See col. 4 lines 54-59) and such arrangement offers the advantage of very flexible adjustment to the support and number of panels (See col. 6 line 58 to col. 7 line 3). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the degrees of downward extent of the rib from the drain channel and the rib from the planar projection facilitate adjustable positioning of the solar cell unit in the lateral direction without interference with the rib from drain channel or the rib from the planar projection.

Regarding claim 20, as seen in Figures 1-2, Tourneux teaches method for mounting a solar cell units. Each solar cell unit comprises a solar cell module (including solar cells 11 and laminate 12); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 57), wherein the module frame comprises a first side frame portion (frame piece 22) and a second side frame portion (frame piece 21) extending parallel to one another and being spaced apart in a lateral direction as seen in Figure 1; a drain channel (including a back portion 27 of frame piece 22, wing 29 and the back side of U-shaped portion 25) provided along an edge of the first side frame portion; a planar projection (the back side of frame piece 21) projecting horizontally outward from an upper edge of the second side frame

portion (frame piece 21); at least one drain trough-defining rib (wing 28) extending upwardly from the drain channel; at least one drip rib (middle protrusion from the back side of frame piece 21) from the planar projection (or the back side of frame piece 21). As seen in Figure 4, Tourneux teaches the step of positioning a first solar cell unit (such as the unit including panel 41) adjacent to a second solar cell unit (such as the unit including panel 42) in a lateral direction. As seen in Figures 1-11, Tourneux shows there are plenty of spaces for the projections to move around. Tourneux also teaches that there is considerable place is left so that expansion of the elements and some deformation of the frame cannot produce any appreciable strain on the panels (See col. 4 lines 54-59) and such arrangement offers the advantage of very flexible adjustment to the support and number of panels (See col. 6 line 58 to col. 7 line 3). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjusting a degree of overlap of the planar projection of the first solar cell unit over the drain channel of the second solar cell unit, a degree of downward extent of the rib from the drain channel of the second solar cell, and a degree of upward extent of the rib from the planar projection of the first solar cell unit to facilitate adjustable positioning of the solar cell units in the lateral direction without interference with the ribs.

Response to Arguments

Applicant's arguments filed 11/29/2007 have been fully considered but they are not persuasive.

Applicant argues that Tourneux piece 22 and the corresponding piece 21 appear to interlock in such a way to limit lateral movement of panels relative to one another. However, the Applicant's argument is not persuasive. First of all the limitation "... facilitating adjustable positioning of the solar cell unit in the lateral direction without interference with a drip rib or drain trough-defining rib of an adjacent solar cell unit" is not supported by the originally filed disclosure. Secondly, Tourneux also teaches the flexibility of changing the number of panels in operation (See col. 6 lines 59 to col. 7 line 3). Therefore it would have been obvious to one skilled in the art that Tourneux teaches adjusting the positions of solar cell units without interference with the ribs in some degrees .

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh-Truc Trinh whose telephone number is 571-272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see h

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/Nam X Nguyen/
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Unit 1753

TT
2/18/2008